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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/597,106	11/06/2008	Bruce F. Monzyk	22114(1)US	6079
2555	7590	03/20/2012		
KREMBLAS & FOSTER 7632 SLATE RIDGE BOULEVARD REYNOLDSBURG, OH 43068			EXAMINER PHASGE, ARUN S	
			ART UNIT 1724	PAPER NUMBER
			NOTIFICATION DATE 03/20/2012	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/597,106

Applicant(s)

MONZYK ET AL.

Examiner

ARUN S. PHASGE

Art Unit

1724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 January 2012.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) ☒ Claim(s) 1-89 is/are pending in the application.
- 5a) Of the above claim(s) 1-22 and 44 is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 23-43 and 45-89 is/are rejected.
- 8) ☐ Claim(s) ____ is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 02/21/2011, 02/21/2011.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Election/Restrictions

Applicant's election of Group II in the reply filed on 1/9/12 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Rejections - 35 USC § 112

Claim 41 recites the limitation "the ferrate(V) and/or ferrate (VI)" in lines 1, 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 43, 51, 52 are rejected under 35 U.S.C. 102(e) as being anticipated by Minevski et al. (Minevski), U.S. Patent 6,946,078.

The Minevski patent discloses a method of making ferrate comprising providing an undivided electrochemical cell comprising an iron-containing anode, a cathode and an electrolyte solution comprising an alkaline solution of NaOH and KOH and applying a voltage between the anode and the cathode to form the ferrate (see col. 5, line 42 to col. 6, line 2). The patent further discloses the use of a porous separator between the electrodes (see col. 5, lines 3-6).

Therefore, the claims are anticipated.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 23, 25, 28-43, 45, 46, 50-63, 67-74, 78-89 are rejected under 35 U.S.C. 103(a) as being unpatentable over Minevski applied as above and further in view of Tremblay et al. (Trembley), US 2003/0042134 and Bouzek et al. (Bouzek), article entitled INFLUENCE OF ELECTROLYTE HYDRODYNAMICS ON CURRENT YIELD IN FERRATE(VI) PRODUCTION BY ANODIC IRON DISSOLUTION and Yang et al. (Yang), article entitled, Studies on the Influence of Various Experimental Conditions on Electrochemical Generation of Ferrate (VI) in NaOH-KOH Mixed Electrolyte.

The Minevski patent further discloses the continuous recycle of the hydroxide once the ferrate is removed (see col. 6, lines 3-18).

The Minevski patent fails to disclose the single inlet with the two outlets as recited in the claims.

The Tremblay patent is cited to show the equivalence between the single outlet and inlet of Minevski and the claimed single inlet and double outlet (see figures 7-8). the patent teaches that such an arrangement allows the removal of oxidants produced at the anode at greater concentrations (See section [0064]). The patent further discloses feeding adjacent the anode (see figure 8).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Minevski by the teachings of Tremblay.

One having ordinary skill in the art would have been motivated to do this modification, because the Tremblay patent shows the functional equivalence between the single inlet and outlet of the Minevski and the single inlet and double outlet of the present invention.

The Minevski patent further fails to teach the relative flow rates being different with the anode being greater than the cathode at a ratio up to 99:1.

The Bouzek reference is cited to show that greater flows are needed through the anode, in particular in a three dimensional electrode, since such greater flow rates would produce the improved formation of ferrates recited therein (see abstract and page 138).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Minevski by the teachings of Bouzek.

One having ordinary skill in the art would have been motivated to do this modification, because the Bouzek reference teaches that greater flow rates through the anode would allow the greater production of ferrates. The exact ratio of flow rates through the anode and cathode compartment would be an experimentally optimized result effective variable and would have therefore been obvious to the ordinary artisan absent a showing of unexpected results.

The Minevski patent further fails to disclose the claimed surface area ratio, and the modifications to current and voltages as recited in the claims.

The Yang reference is cited to show such experimentally optimized conditions routinely practiced in the art to optimize the electrochemical generation of ferrates, in particular the ratios of alkali hydroxides (page 796) and electrochemical measurement (see pages 797 and 798).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Minevski by the teachings of Yang.

One having ordinary skill in the art would have been motivated to do this modification, because the Yang reference discloses routinely optimizations practiced within the art to generate the most ferrate based upon economic considerations.

Claims 24, 26-27, 47-49, 64-66 and 75-77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Minevski in view of Tremblay, Bouzek and Yang as applied to claims above, and further in view of Ciampi, U.S. Patent 6,790,429.

The Minevski and Bouzek references fail to disclose the use of devices, such as the claimed valve (flow restrictions would be encompassed by a valve) or weirs to control the flow.

The Ciampi patent is cited to show such a conventional restrictive device to control flow, such as valves or even weirs (which by definition appear to be dams) (see col. 16, lines 51-65).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Minevski by the teachings of Ciampi.

One having ordinary skill in the art would have been motivated to do this modification, because the Ciampi patent teaches the conventional use of valves to control the flow of fluids.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ARUN S. PHASGE whose telephone number is (571)272-1345. The examiner can normally be reached on MONDAY-THURSDAY, 7:30-6:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith D. Hendricks can be reached on (571) 272-1401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ARUN S PHASGE/
Primary Examiner, Art Unit 1724

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